

Serial No. 10/000,338

NIP-155-03

REMARKS

The Applicants request reconsideration of the rejection.

Claims 1-9 remain pending.

Claims 1-9 were finally rejected under 35 U.S.C. §103(a) as being unpatentable over Murray et al., U.S. Patent 4,729,855 (Murray) in view of Milner, U.S. Patent 5,523,513 (Milner), and JP9-174066 (JP '066). The Applicants traverse as follows.

In the Examiner's detailed Response to Arguments on Pages 2-3 of the Office Action, the Examiner asserts that Murray, as a primary reference, comes so close to teaching the claimed invention that specific differences between the invention as claimed and the teachings for which Murray is applied are "obvious", although the record does not show prior art teachings to support the obviousness of, for example, stopping the injection of the claimed hydrazine in order to ensure that the claimed method occurs effectively; breaking a cation resin; providing a response to the breaking of the cation resin; or recognizing that the breaking of the cation resin is a significant development (let alone a desirable or even recognized development). Notably, the secondary references to Milner and JP '066 are applied as teaching, respectively, the

Serial No. 10/000,338

NIP-155-03

use of oxalic acid in a decontamination process, and the use of hydrogen peroxide solution and catalysts to decompose wastewater containing hydrazine. Thus, each of the claimed features noted above is missing from every applied reference, and thus necessarily from the combination of applied references.

In sum, the rejection relies upon the "obviousness" to modify a combination of the applied references, with no teaching support in the prior art or motivation to modify the combination, other than the perceived "obviousness" asserted in the Office Action. Respectfully, this is almost the definition of "hindsight reasoning" of the type that is impermissible in the patentability determination.

Perhaps the Office Action proceeds in the wrong direction as a result of a fundamental misunderstanding of the claimed occurrence in which the hydrazine "breaks through" the cation resin. The Applicants sense from the Office Action that the Examiner may consider this "breaking through" to be some sort of structural collapse of the cation resin or a column in which the cation resin exists ("it may just as likely be that Murray either did not experience the breaking of the exchange resin or that Murray thought it obvious to halt the process when a major component broke down") (emphasis added).

Serial No. 10/000,338

NIP-155-03

More accurately, the occurrence of the hydrazine breaking through (not breaking "of" or "down") the cation resin is the result in the Fig. 9 embodiment of the decontamination solution passing from the portion 1 to be decontaminated (pipes of a nuclear power plant, for example) to the cation resin column 7 without first passing through the catalyst decomposition column 6. For contrast, in the Fig. 1 embodiment, after decontamination of the portion 1, the decontamination solution containing the chelated particles passes through the catalyst decomposition column 6 so as to decompose the hydrazine before entry into the cation resin column 7. In the Fig. 1 embodiment, this is a desirable step because the cation exchange resin will otherwise react with the hydrazine, thus reducing the performance of the cation exchange resin.

However, in the Fig. 9 embodiment, there is an advantage in that the concentration of radioactivity in the liquid flowing to the catalyst decomposition column 6 is low because the water flows into the catalyst decomposition column 6 after flowing through the cation resin column 7, and consequently, the accumulation of radioactivity in the catalyst decomposition column 6 can be substantially suppressed. Further, it is unnecessary to decompose the hydrazine until

Serial No. 10/000,338

NIP-155-03

the hydrazine breaks through the cation resin column 7. Even when the hydrazine breaks through the cation resin column 7, though, there still remains the advantage that hydrazine need no longer be injected, and an excessive amount of hydrazine flowing out of the cation resin column 7 is decomposed in the catalyst decomposition column 6. This is the reason for the claim limitation, "stopping the injecting step of the hydrazine after the hydrazine breaks through a cation resin... arranged in a circulation line connected to the metallic material" (amended version "stopping the injecting step of the hydrazine after the hydrazine breaks through a cation resin trapping at least hydrazine and arranged in a circulation line connected to the metallic material").

Given this understanding, one sees that the assertions on Page 2 of the Office Action do not truly bear on the patentability determination. For example, the Office Action states, "The fact that the Murray reference does not teach a response to the breaking of the cation resin would not prevent one of ordinary skill at the time of invention from happening accordingly." However, the very "fact" that Murray does not teach a response to the breaking of the cation resin shows that Murray is different from the invention as claimed. Moreover, the standard for applying a reference is not to

Serial No. 10/000,338

NIP-155-03

first look at the teachings of the reference and then decide what one of ordinary skill is prevented from doing; rather, the reference is to be examined to determine what the reference itself teaches the person of ordinary skill to do or not to do. In this case, Murray provides many teachings for the person of ordinary skill to follow in decontaminating radioactive metal surfaces, but Murray does not teach the person of ordinary skill to decontaminate radioactive nuclides using oxalic acid and hydrazine and to stop the injecting step of the hydrazine after the hydrazine breaks through a cation resin.

Further, although the Office Action states, "the lack of a teaching in Murray cannot be determined to be due to a lack of recognition of a significant development; it may just as likely be that Murray either did not experience the breaking of the exchange resin, or that Murray thought it obvious to halt the process when a major component broke down," the Applicants respectfully submit that the lack of this teaching in Murray may well be assumed to be due to a lack of recognition of the development. In fact, Murray teaches that the ionic exchange resin can be preloaded with the hydrazine portion of the condensation reaction product to prevent the deposition of that portion onto the column in preference to

Serial No. 10/000,338

NIP-155-03

the metal ions. See Column 1, lines 34-37. More specifically, Murray teaches that, if  $N_2H_3CH_3$  is used to form the condensation reaction product, a cationic exchange column should be loaded with  $N_2H_5^+$  or preferably with  $N_2H_4CH_3^+$  to prevent the hydrazine moiety of the condensation reaction product from being loaded onto the column in preference to the chelated metal ions. Thus, Murray teaches away from performing the decontamination in a manner that would allow the hydrazine to break through the cation resin, and thus necessarily fails to provide any response or advantage to the occurrence.

Therefore, as implied by the Office Action, Murray indeed either does not experience the hydrazine breaking through the exchange resin, or only halts the process when a major component breaks down. If, on the other hand, the noted "breaking of the exchange resin" or "major component [breaking] down" is a misinterpretation of the claimed limitation as suspected, then this statement in the Office Action perhaps may be set aside.

It is also true that, in the decontamination method of Murray, the hydrazine concentration in the decontamination agent increases gradually with time, and the pH also shifts to the alkaline side because metal ions resulting from the

Serial No. 10/000,338

NIP-155-03

decontamination are adsorbed on the cation resin, and the hydrazine is eluted from the cation resin tower. On the contrary, in the present invention, the hydrazine concentration at the exit of a cation resin tower is substantially zero until the hydrazine breaks through. After the hydrazine breaks through, it is possible to keep both the hydrazine concentration and the pH approximately constant by stopping the injection of hydrazine, because elution of metal ions becomes small at the time of break through. The quantity of hydrazine eluted from the cation exchange resin decreases, and the pH system thus is not largely changed.

Therefore, there seems to be no suggestion to modify Murray to provide continuous injection of hydrazine followed by stopping of the hydrazine injection, because there is no consideration according to Murray about the relation between the decrease in metal ion elution quantity from the portion to be contaminated and the decrease in hydrazine elution quantity from the cation exchange resin, accompanied by the metal ion elution.

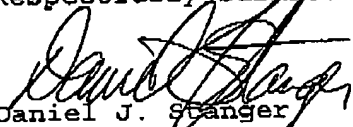
Because neither Milner nor JP '066 relate to the decontamination method which is directed to injection and then stopping of the injection in accordance with the hydrazine breaking through the cation resin, it necessarily follows that

Serial No. 10/000,338

NIP-155-03

the combination of Murray, Milner, and JP '066 fails to suggest the present invention. Accordingly, the Applicants respectfully request reconsideration of the rejection and allowance of the claims.

Respectfully submitted,

  
Daniel J. Stanger  
Registration No. 32,846  
Attorney for Applicants

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.  
1800 Diagonal Rd., Suite 370  
Alexandria, Virginia 22314  
Telephone: (703) 684-1120  
Facsimile: (703) 684-1157

Date: January 28, 2005